

Mountain Valley Pipeline's Responses to Additional Comments Provided by the United States Environmental Protection Agency (July 27, 2022) for the Clean Water Act Section 404 Individual Permit

The following information provides responses to address the additional USEPA comments provided to Mountain Valley.

USEPA Comment 1: In cases where sampling occurred outside of the recommended procedures for the sampling protocols (sampling dates, required flow conditions, etc.), how has MVP ensured that sampling data is representative of stream conditions and useful for post-impact restoration?

Response: Mountain Valley was able to collect benthic macroinvertebrate samples during the appropriate sampling windows in both West Virginia and Virginia. For the streams that lacked sufficient hydrology¹ or habitat,² Mountain Valley has included numerous safeguards to ensure that the resource crossings are successfully restored.

First, the stream survey information (Appendix A, Section 2.0.1 of the Mitigation Framework) and the riparian vegetation information (Appendix A, Section 2.0.2 of the Mitigation Framework) that has been collected will help ensure that pre-crossing conditions are restored. That information allows Mountain Valley and the agencies to verify that the physical condition of a stream, including habitat and flow characteristics, has been restored in accordance with the relevant performance standards.

Second, every stream will be inspected immediately prior to the crossing activity to document its existing condition. This process is described in Section 2.0.1 of Appendix A in the Mitigation Framework:

Mountain Valley's environmental inspection team conducts a detailed inspection of every aquatic resource immediately prior to the start of construction. As part of those inspections, data collected from the pre-crossing longitudinal surveys, cross-sections, and photographs will be evaluated to determine if there has been a substantial shift in the streambed morphology at each of the crossings between the date the preliminary survey was conducted and the date of the crossing. Evaluations may include, but are not limited to, the assessment of potential changes to elevations in riffles and to top of riffle locations. In the event a substantial shift in streambed morphology is noted during a pre-construction inspection, the environmental inspection team will delay construction of the crossing until a revised longitudinal profile survey and cross section can be prepared.

As discussed in Section 2.2 of Appendix B (Pre-Construction Inspection), the pre-crossing inspection also includes the completion of a Pre-construction Resource Crossing Checklist to confirm that site conditions have not materially changed since the baseline information was collected. If significant changes have occurred, the crossing will not proceed until a new survey is completed. The pre-crossing inspection process serves several functions, including to document any changes to streams since the baseline

¹ According to the WVDEP standard operating procedures (SOP) (available at <https://dep.wv.gov/WWE/getinvolved/sos/Pages/SOPs.aspx>), for a sample to be comparable, the stream must have enough flow to wash benthic macroinvertebrates over the lip of the net.

² The WVDEP SOP indicates that there should be at least one square meter of riffle/run habitat in an assessment reach to obtain a complete and comparable benthic macroinvertebrate sample.

assessment data were collected. The pre-crossing inspection will create a current snapshot of the stream condition to guide restoration and later evaluations of restoration success.

By combining the baseline data that were already collected with the pre-crossing inspections, the restoration procedures identified in Appendix B of the Mitigation Framework (specifically Section 3.0), and the performance standards identified in Appendix C of the Mitigation Framework (specifically Sections 2.0.1 and 2.0.2), Mountain Valley will ensure that every stream is properly restored.

USEPA Comment 2: In cases where data could not be collected due to site access/safety considerations, how does MVP expect to evaluate post-restoration performance measures?

Response: Mountain Valley has collected data about the streams and wetlands at various points in the development of the Project. That information can be, and has been, used to help fill in data gaps.

The Baseline Assessment represented a supplemental data collection effort. In areas where the supplemental surveys could not be completed on a stream segment that had an existing timber mat crossing³ or other restriction, Mountain Valley will use the data that were collected directly upstream and/or downstream of the crossing within the right-of-way to generate a reasonably certain inference of the conditions within the crossing. In addition to this information, Mountain Valley will use available LiDAR information to restore the channel and stream banks to the proper dimensions. It is also worth noting that the timber mat crossings are approximately 15 to 25 feet wide at these locations, and span the resource, with no fill anticipated within the ordinary highwater mark, except for incidental fallback or other minor inadvertent impacts.

Section 2.1 of Appendix A indicates that survey crews were prohibited from sampling if access conditions are determined to be unsafe. In the event of unsafe conditions, data will be used from previously collected information, and any data gaps would be documented in the restoration reports. Mountain Valley will attempt to address any data gaps while completing the Pre-construction Resource Crossing Checklist or, if circumstances warrant, identify and rely on a suitable reference stream.

As explained in the previous response, the Mitigation Framework's restoration procedures (Appendix B) and the performance standards (Appendix C) will ensure that the resource is properly restored. In addition, the Mitigation Framework's Adaptive Management Plan (Appendix E), outlines the recommended actions to be considered if the resource is not properly restored. Based on the procedures outlined in the Mitigation Framework, the impacted resources along the project will be properly restored or otherwise mitigated.

³ Due to safety concerns, Mountain Valley restricted field crews from collecting data under existing timber mat bridges that had limited access.

USEPA Comment 3: Please clarify which reaches utilized surrogate/reference reach data instead of data from the specific resource and provide the circumstances requiring surrogate/reference reach data and rationale for use of the selected reach.

Response: Please see below the rationale for the selected reference streams.

1. S-B6a TEMP AR/INDIAN RUN/HARRISON COUNTY/TEMPORARY ACCESS ROAD

- Limited access due to existing span. Area could not be accessed due to safety concerns.
- Reference Stream Rationale: Stream S-B6a Timber Mat (TM) was used as a reference stream for stream S-B6a TEMP AR. During the baseline assessment data collection and revisit, the stream S-B6a TEMP AR was not accessible due to an existing timber mat (too low to safely sample under). S-B6a TM and S-B6a TEMP AR are both located on perennial sections of Indian Run (approximately 270 feet apart) and technically fall within an agency defined sampling reach.⁴ Because data was collected for S-B6a TM, it was determined that this information would be a suitable reference stream for S-B6a TEMP AR.

2. S-A106/UNT TO KINCHELOE CREEK/HARRISON COUNTY/TIMBER MAT CROSSING

- No defined stream bed and/or bank was observed during the baseline assessment field surveys and the area where the channel was previously observed was well vegetated. Additionally, the original delineation identified a poorly defined channel.
- Reference Stream Rationale: Stream S-A105 was used as a reference stream for stream S-A106. During the baseline assessment data collection, stream S-A106's bed and banks were not clearly defined, and no flow conditions were observed. S-A105 and S-A106 are both on separate unnamed tributaries (UNTs) to Kincheloe Creek and S-A106 discharges into S-A105. Therefore, due to their connection and similar location in the watershed S-A105 was determined to be a suitable reference stream.

3. S-J37/UNT TO BARBECUE RUN/BRAXTON COUNTY/TIMBER MAT CROSSING

- No defined stream bed and/or bank was observed during the baseline assessment field surveys and the area where the channel was previously observed was well vegetated. Additionally, the original delineation identified a poorly defined channel.
- Reference Stream Rationale: Stream S-L51 was used as a reference stream for stream S-J37. During the baseline assessment data collection, stream S-J37's bed and banks were not clearly defined, and no flow conditions were observed. Although stream S-J37 is intermittent, stream S-L51 (Barbeque Run - a perennial stream) was selected as a suitable reference stream. Stream S-J37 is an UNT to Barbeque Run and discharges into stream S-L51 immediately outside of the LOD. Due to their connection and location within the project area, it was determined that stream S-L51 would be a suitable reference stream.

⁴ Both the WVDEP standard operating procedure (SOP) and the USEPA rapid bioassessment protocol (RBP) define a sample reach in wadeable streams as 100-meters.

4. S-A98/UNT TO LEFT FORK HOLLY RIVER/WEBSTER COUNTY/PIPELINE ROW_TEMPORARY ACCESS ROAD

- No defined stream bed and/or bank was observed during the baseline assessment field surveys and the area where the channel was previously observed was vegetated. Additionally, the original delineation identified a poorly defined stream.
- Reference Stream Rationale: Stream S-A97 was used as a reference stream for stream S-A98. During the baseline assessment data collection, stream S-A98's bed and banks were not clearly defined, and no flow was observed. Streams S-A98 and S-A97 are both tributaries in the same small watershed and both discharged into stream S-A96/A103 (UNT of the Left Fork Holly River). The streams are both high gradient headwater streams with similar topography and are located within approximately 50' of one another. Due to their proximity to each other, similarities in topography, and location within the project area, it was determined that stream S-A97 would be a suitable reference stream.

5. S-E74/UNT TO LEFT FORK HOLLY RIVER/WEBSTER COUNTY/PIPELINE ROW

- No defined stream bed and/or bank was observed during the baseline assessment field surveys and the original delineation identified a poorly defined channel.
- Reference Stream Rationale: Stream S-E78/E82/R1 was used as a reference stream for stream S-E74. During the baseline assessment data collection, stream S-E74, located on the edge of the LOD, had bed and banks that were not clearly defined. S-E74 and S-E78/E82/R1 are each separate perennial UNTs to stream S-A100 (Left Fork Holly River), and data were able to be collected for S-E78/E82/R1. Although the locations are in slightly different landforms/elevations--S-E74 is located further upstream in its drainage and S-E78/E82/R1 is located further downstream in its drainage--they are the only perennial UNT streams evaluated in the Left Fork Holly River watershed and are likely to have the most similar characteristics under normal conditions; therefore S-E78/E82/R1 was determined to be a suitable reference stream.

6. S-H113(2)/UNT TO ELK RIVER/WEBSTER COUNTY/PIPELINE ROW

- Limited access due to existing span. Area could not be accessed due to safety concerns. Additionally, limited stream reach (approx. five feet or less) and lack of flowing water in the side-channel/braid.
- Reference Stream Rationale: Stream S-H113 (1) was used as a reference stream for stream S-H113 (2). During the baseline assessment data collection, stream S-H113, which falls on the edge of the Project's LOD, splits into two channels; the section where S-H113(2) was located was only approximately five feet and with the existing timber mat bridge and lack of flow, data were not able to be collected from the braided side-channel. The two streams are located on the same tributary within what would be considered to be the same agency defined sampling reach. The locations have similar topography and under normal conditions likely have similar water quality and riparian characteristics. Therefore, data collected for S-H113(1) was determined to be a suitable reference stream.

7. S-A93 TEMP AR and S-A93 ROW/UNT TO CAMP CREEK/WEBSTER COUNTY/TEMPORARY ACCESS ROAD and PIPELINE ROW

- No defined stream bed and/or banks were observed during the baseline assessment field surveys and the areas where the channels were previously observed were vegetated. Additionally, the original delineation identified a poorly defined channel.
- Reference Stream Rationale: Stream S-H107 ROW was used as a reference stream for streams S-A93 TEMP AR and S-A93 ROW. During the baseline assessment data collection, the stream S-A93 TEMP AR's and S-A93 ROW's bed and banks were not clearly defined, and no flow conditions were observed. S-A93 TEMP AR and S-A93 ROW are located on the same ephemeral UNT to Camp Creek and S-H107 ROW is intermittent. However, both are UNTs to Camp Creek and have similar topography, characterized by steep hillsides in their drainages; therefore, S-H107 ROW was selected as a suitable reference stream.

8. S-A92/UNT TO CAMP CREEK/WEBSTER COUNTY/PIPELINE ROW

- No defined stream bed and/or bank was observed during the baseline assessment field surveys. Additionally, the original delineation identified a poorly defined channel.
- Reference Stream Rationale: Stream S-H107 ROW was used as a reference stream for stream S-A92. During the baseline assessment data collection, stream S-A92's bed and banks were not clearly defined, and no flow conditions were observed. Although it is not immediately adjacent to stream S-A92 (ephemeral), stream S-H107 (intermittent) is also an UNT to Camp Creek, and both tributaries have similar topography, and under normal conditions likely have similar water quality and riparian characteristics. Therefore, data collected for S-H107 ROW was determined to be a suitable reference stream.

9. S-A69 (2)/UNT TO BIG BEAVER CREEK/NICHOLAS COUNTY/PIPELINE ROW

- Limited access due to existing span. Area could not be accessed due to safety concerns.
- Reference Stream Rationale: Stream S-A69 (1), was used as a reference stream for stream S-A69 (2). During the baseline assessment data collection and revisit, stream S-A69 (2) was not accessible due to an existing timber mat, which was too low to safely collect samples. Stream S-A69(1) is located approximately 70' downstream of stream S-A69 (2) along the same stream within what would be considered an agency defined sampling reach; therefore, it was selected as a suitable reference stream.

10. S-N13/UNT TO SKELT RUN/NICHOLAS COUNTY/PIPELINE ROW

- No defined stream bed and/or bank was observed during baseline assessment field investigations. Additionally, the original delineation identified a poorly defined stream in a low-lying area.
- Reference Stream Rationale: Stream S-N13 Braid was used as a reference stream for stream S-N13. During the baseline assessment data collection, stream S-N13's bed and banks were not clearly defined, and no flow conditions were observed. S-N13 and S-N13 Braid are both located in intermittent sections of UNT to Skelt Run, directly adjacent to each other and within what would be considered an agency defined sampling reach; therefore S-N13 Braid was determined to be a suitable reference stream.

11. S-I37/UNT TO HOMINY CREEK/NICHOLAS COUNTY/PIPELINE ROW

- No defined stream bed and/or bank was observed during baseline assessment field investigations.
- Reference Stream Rationale: Stream S-I31 was used as a reference stream for stream S-I37. During the baseline assessment data collection, stream S-I37's bed and banks were not clearly defined, and no flow conditions were observed. Although not in proximity to each other, streams S-I37 and S-I31 are both ephemeral UNTs to Hominy Creek. Both streams are located in forested headwater reaches and demonstrate similar topography and data were able to be collected for S-I31; therefore S-I31 was determined to be a suitable reference stream.

12. S-I41/UNT TO HOMINY CREEK/NICHOLAS COUNTY/PIPELINE ROW

- No defined stream bed and/or bank was observed during baseline assessment field investigations. Additionally, the original delineation identified a poorly defined channel.
- Reference Stream Rationale: Stream S-I39 was used as a reference stream for stream S-I41. During the baseline assessment data collection, stream S-I41's bed and banks were not clearly defined, and no flow conditions were observed. Although the resources are not in proximity to each other, both streams are intermittent UNTs to Hominy Creek and have similar physical characteristics (forested drainages and landform) and under normal conditions likely have similar water quality and riparian characteristics; therefore S-I39 was determined to be a suitable reference stream.

13. S-HH8/UNT TO BUFFALO CREEK/GREENBRIER COUNTY/ATWS

- No defined stream bed and/or bank was observed during baseline assessment field investigations. In addition, the stream flows through a culvert, further limiting access. Additionally, the original delineation photos illustrated a poorly defined stream.
- REVISIT 3-16-2022. Note limitations of reach due to roadside culvert and poorly defined stream reach; stream may continue subsurface.
- Reference Stream Rationale: Stream S-K19 was used as a reference stream for stream S-HH8. During the baseline assessment data collection and revisit, stream S-HH8's bed and banks were not clearly defined, and no flow conditions were observed. Although S-HH8 is an ephemeral stream and is not immediately adjacent to S-K19 (intermittent stream), both are UNTs to Buffalo Creek and occupy similar terrain (elevation/open field); therefore, S-K19 was determined to be a suitable reference stream since the other evaluated streams in proximity with data were perennial.

14. S-K25_K18/UNT TO BUFFALO CREEK/GREENBRIER COUNTY/ATWS

- No defined stream bed and/or bank was observed during baseline assessment field investigations. Additionally, the original delineation photos illustrate a narrow drainage (with substrate).

- Reference Stream Rationale: Stream S-K19 was used as a reference stream for stream S-K25/K18. During the baseline assessment data collection and revisit, stream S-K25/K18's bed and banks were not clearly defined, and no flow conditions were observed. S-K25/K18 and S-K19 are each separate intermittent UNTs to Buffalo Creek and are nearly adjacent to each other at their confluence with Buffalo Creek. Both have similar physical characteristics, including landform (open field) and elevation; therefore, S-K19 was determined to be a suitable reference stream.

15. S-CD23/UNT TO HUNGARD CREEK/SUMMERS COUNTY/TIMBER MAT CROSSING

- No defined stream bed and/or bank was observed during baseline assessment field investigations. Additionally, original delineation photos illustrate no defined stream but more of an erosional feature.
- Reference Stream Rationale: Stream S-N4 was used as a reference stream for stream S-CD23. During the baseline assessment data collection, stream S-CD23's bed and banks were not clearly defined, and no flow conditions were observed. S-CD23 and S-N4 are located approximately 70' apart and are both ephemeral UNTs to Hungard Creek with similar physical characteristics (landform/elevation); therefore S-N4 was determined to be a suitable reference stream.

16. S-EF53/UNT TO GREENBRIER RIVER/SUMMERS COUNTY/TEMPORARY ACCESS ROAD

- No defined stream bed and/or bank was observed during baseline assessment field investigations. Additionally, the original delineation photos illustrated a poorly defined stream
- Reference Stream Rationale: Stream S-L2 was used as a reference stream for stream S-EF53. During the baseline assessment data collection, stream S-EF53's bed and banks were not clearly defined, and no flow conditions were observed. Although S-EF53 and S-L2 are not adjacent, both are intermittent UNTs to Greenbrier River and data were able to be collected for S-L2. Under normal conditions both likely have similar water quality and riparian characteristics; therefore S-L2 was determined to be a suitable reference stream.

17. S-I9/UNT TO GREENBRIER RIVER/SUMMERS COUNTY/TIMBER MAT CROSSING

- No defined stream bed and/or bank was observed during baseline assessment field investigations. Additionally, original delineation photos illustrate a narrow drainage (with substrate) from a ditch through the field.
- REVISIT 3-16-2022. No defined bed/bank was observed outside the growing season, even with vegetation die back.
- Reference Stream Rationale: Stream S-L2 was used as a reference stream for stream S-I9. During the baseline assessment data collection and revisit, stream S-I9's bed and banks were not clearly defined, and no flow conditions were observed. Although S-I9 and S-L2 are not adjacent, both are intermittent UNTs to Greenbrier River and data were able to be collected for S-L2. Under normal conditions both likely have similar water quality and riparian characteristics; therefore S-L2 was determined to be a suitable reference stream.

18. S-K10 (1) and S-K10 (3)/UNT TO GREENBRIER RIVER/SUMMERS COUNTY/TEMPORARY ACCESS ROAD

- No defined stream bed and/or bank. Additionally, the original delineation photos illustrate a narrow drainage (with substrate) from a ditch through the field.
- Reference Stream Rationale: Stream S-L2 was used as a reference stream for streams S-K10 (1) and S-K10 (3). During the baseline assessment data collection, stream S-K10 (1)'s and S-K10 (3)'s bed and banks were not clearly defined, and no flow conditions were observed. S-K10 (1) and S-K10 (3) are located on the same UNT to Greenbrier River, and S-L2 is located on a separate intermittent UNT to Greenbrier River. Although they are not adjacent, data were able to be collected for S-L2, and under normal conditions, all three likely have similar characteristics; therefore S-L2 was determined to be a suitable reference stream.

19. S-G47/UNT TO WIND CREEK/SUMMERS COUNTY/TIMBER MAT CROSSING

- No defined stream bed and/or bank was observed during baseline assessment field investigations. Additionally, the original delineation photos illustrated a poorly defined stream.
- Reference Stream Rationale: Stream S-G49 was used as a reference stream for stream S-G47. During the baseline assessment data collection, stream S-G47's bed and banks were not clearly defined, and no flow conditions were observed. Although S-G47 is an ephemeral stream and is not immediately adjacent to S-G49 (perennial stream), both are UNTs to Wind Creek and S-G49 had data that were able to be collected. The other UNTs to Wind Creek did not have data; therefore, S-G49 was determined to be a suitable reference stream.

20. S-G52/UNT TO WIND CREEK/MONROE COUNTY/TIMBER MAT CROSSING

- No defined stream bed and/or bank was observed during baseline assessment field investigations. Additionally, the original delineation photos illustrate a poorly defined stream.
- Reference Stream Rationale: Stream S-G49 was used as a reference stream for stream S-G52. During the baseline assessment data collection, stream S-G52's bed and banks were not clearly defined, and no flow conditions were observed. Although S-G52 is ephemeral and S-G49 is perennial, both are UNTs to Wind Creek and located on similar landform/elevation; therefore S-G49 was determined to be a suitable reference stream. In addition, stream S-G52 drains into stream S-G49.

21. S-A61(1) and S-A61(2)/UNT TO SLATE RUN/MONROE COUNTY/TEMPORARY ACCESS ROAD

- No defined stream bed and/or bank was observed during baseline assessment field investigations. Additionally, the original delineation photos illustrate a poorly defined stream.
- Reference Stream Rationale: Stream S-A61 ROW was used as a reference stream for streams S-A61(1) and S-A61(2). During the baseline assessment data collection, the bed

and banks were not clearly defined, and no flow conditions were observed. Since S-A61(1) and S-A61(2) are located on the same stream as S-A61 ROW (i.e. the same stream (UNT to Slate Run), just different sections) and within what would be considered an agency defined sampling reach, it was determined to be a suitable reference stream.

22. S-D29/UNT TO HANS CREEK/MONROE COUNTY/TIMBER MAT CROSSING

- No defined stream bed and/or bank was observed during baseline assessment field investigations. Original delineation notation indicates that the stream is sourced by a spring and that livestock had impacted the stream banks upstream of pond, to which S-D29 flows.
- Reference Stream Rationale: Stream S-D25 was used as a reference stream for stream S-D29. During the baseline assessment data collection, stream S-D29's bed and banks were not clearly defined, and no flow conditions were observed. Although S-D29 and S-D25 are not adjacent, they are each intermittent UNTs to Hans Creek and under normal circumstances, likely share similar physical characteristics; therefore S-D25 was determined to be a suitable reference stream.

23. S-MN39/UNT TO BLUE LICK CREEK/MONROE COUNTY/PIPELINE ROW

- No defined stream bed and/or bank was observed during baseline assessment field investigations. Additionally, the original delineation photos illustrated a poorly defined stream that looks like a manmade or erosional ditch.
- Reference Stream Rationale: Stream S-MN37 was used as a reference stream for stream S-MN39. During the baseline assessment data collection, stream S-MN39's bed and banks were not clearly defined, and no flow conditions were present. Although S-MN39 is ephemeral and S-MN37 is intermittent, both are UNTs to Blue Lick Creek located at similar elevations along forested hillsides and under normal circumstances, likely have similar water quality and riparian characteristics. Therefore S-MN37 was determined to be a suitable reference stream. In addition, the streams are approximately 70' apart within the same local drainage.

24. S-MN40/UNT TO BLUE LICK CREEK/MONROE COUNTY/PIPELINE ROW

- Limited access due to existing span. Area could not be accessed due to safety concerns.
- REVISIT 3-24-2022. Access limited due to existing span. Poorly defined stream bed/bank and vegetation growth along drainage channel from wetland.
- Reference Stream Rationale: Stream S-MN37 was used as a reference stream for stream S-MN40. During the baseline assessment data collection and revisit, stream S-MN40 was not accessible due to an existing timber mat, which was too low to safely collect samples. Although S-MN40 is ephemeral, and S-MN37 is intermittent, both are UNTs to Blue Lick Creek located at similar elevations along forested hillside and under normal circumstances, likely have similar water quality and riparian characteristics. Therefore S-MN37 was determined to be a suitable reference stream. In addition, stream S-MN40 drains into stream S-MN37.

25. S-IJ19/UNT TO SINKING CREEK/GILES COUNTY/TEMPORARY ACCESS ROAD

- Limited access due to existing span.
- REVISIT 1/11/2022: Limited access due to existing span, original access constraints confirmed.
- Reference Stream Rationale: There are two access road crossings of stream S-IJ19 approximately 125 feet apart. Information associated with the smaller impact of nine feet was not accessible during the baseline survey due to an existing span and landowner access. Therefore, the information that was collected for the downstream crossing was used. Due to their proximity to each other and location within the project area, it was determined that the downstream crossing of S-IJ19 would be a suitable reference stream.

26. S-QQ3/UNT TO SINKING CREEK/GILES COUNTY/TEMPORARY ACCESS ROAD

- Restricted access due to the stream being located adjacent to the Project LOD⁵.
- Reference Stream Rationale: Stream crossing S-IJ16-a access road was used as a reference stream for stream crossing S-QQ3. During the supplemental baseline assessment data collection, the S-QQ3 stream crossing was identified as being adjacent to the Project's LOD. S-QQ3 and S-IJ16-a crossing locations are both located on ephemeral sections of tributaries to Sinking Creek. The streams are both high gradient, headwater streams with similar topography located in the same watershed. Due to their proximity to each other, similarities in topography, and location within the project area, it was determined that S-IJ16-a would be a suitable reference stream.

27. S-PP3/UNT TO SINKING CREEK/CRAIG COUNTY/PIPELINE ROW

- This stream was a mounded rock-lined channel and thus measurements were unable to be taken. This is consistent with the stream conditions observed at the time of delineation (see baseline photos).
- Reference Stream Rationale: Stream crossing S-RR4 Timber Mat (TM) was used as a reference stream for stream crossing S-PP3. During the supplemental baseline assessment data collection, the S-PP3 stream crossing was not accessible since it was covered by a preexisting rock mound. S-PP3 and S-RR4 crossing locations are both located on perennial sections of Sinking Creek watershed and have similar topography and gradients. Due to their similarities and location within the same watershed, it was determined S-RR4 is a suitable reference stream.

28. S-C36/UNT TO FLATWOODS BRANCH/MONTGOMERY COUNTY/PIPELINE ROW

- Limited access due to existing span.
- REVISIT 1/10/2022: Limited access due to existing span, original access constraints were confirmed.

⁵ As stated in the Mitigation Framework, Mountain Valley has limited ability to conduct activities outside the LOD approved by the FERC. Therefore, the field collection activities were limited to the LOD.

- Reference Stream Rationale: There are two crossings of stream S-C36, approximately 40 feet apart. Information associated with the smaller impact of 36 feet was not accessible due to the existing timber mat span. Since both crossings are located on the same intermittent section of the UNT to Flatwoods Branch and are within 40 feet, the information associated with the upstream crossing was used as a reference stream.

29. S-IJ85/UNT TO BOTTOM CREEK/ROANOKE COUNTY/PERMANENT ACCESS ROAD

- Limited access due to security and landowner concerns.
- Reference Stream Rationale: Stream crossing S-IJ88 was used as a reference stream for stream crossing S-IJ85. During the baseline assessment data collection and supplemental revisit, the S-IJ85 stream crossing was not accessible due to landowner and safety concerns. S-IJ85 and S-IJ88 crossing locations are both located on perennial sections of Bottom Creek watershed and have similar channel slope gradient and surrounding land cover. Since data was collected for S-IJ88, it was determined that this information would be a suitable reference stream for S-IJ85.

30. S-IJ89/UNT TO BOTTOM CREEK/ROANOKE COUNTY/TIMBER MAT CROSSING

- Limited access due to security and landowner concerns.
- Reference Stream Rationale: Stream crossing S-IJ88 was used as a reference stream for stream crossing S-IJ89. During the supplemental baseline assessment data collection and revisit, the S-IJ89 stream crossing was not accessible due to landowner and safety concerns. S-IJ89 and S-IJ88 crossing locations are both located on perennial sections of Bottom Creek and have similar surrounding topography and land cover. Since data was collected for S-IJ88 and there are similarities in topography and location within the project area, it was determined that this information would be a suitable reference stream for S-IJ89.

31. S-IJ90/UNT TO BOTTOM CREEK/ROANOKE COUNTY/TIMBER MAT CROSSING

- Limited access due to security and landowner concerns.
- Reference Stream Rationale: Stream crossing S-IJ82 was used as a reference stream for stream crossing S-IJ90. During the supplemental baseline assessment data collection and revisit, the S-IJ90 stream crossing was not accessible due to landowner and safety concerns. S-IJ90 and S-IJ82 crossing locations are both located on intermittent sections of UNT to Bottom Creek and have similar surrounding topography and land cover. Since data was collected for S-IJ82 and there are similarities in topography and location within the project area, it was determined that this information would be a suitable reference stream for S-IJ90.

32. S-S11/UNT TO MAGGODEE CREEK/FRANKLIN COUNTY/TEMPORARY ACCESS ROAD

- The access to this stream was prohibited by the landowner.
- Reference Stream Rationale: Stream crossing S-KL54 was used as a reference stream for stream crossing S-S11. During the baseline assessment data collection, the S-S11 stream crossing was not accessible due to landowner postings. S-S11 and S-KL54 crossing

locations are both located on perennial sections of the same UNT to Maggodee Creek. Due to their proximity, similar topography, land cover and location within the project area, it was determined that S-KL54 would be a suitable reference stream.

33. S-MM23/MAPLE BRANCH/FRANKLIN COUNTY/TEMPORARY ACCESS ROAD

- Restricted access due to the resource being located adjacent to LOD.
- REVISIT 1/27/2022: Limited access – resource located adjacent to the LOD, original access constraints were confirmed.
- Reference Stream Rationale: Stream crossing S-MM29 was used as a reference stream for stream crossing S-MM23. During the supplemental baseline assessment data collection, the S-MM23 stream crossing was not accessible due to the resource being located adjacent/outside of the LOD. S-MM23 and S-MM29 crossing locations are both located on perennial sections of Maple Branch and stream S-MM29 drains into S-MM23. Due to their proximity, land cover, and location within the project area, it was determined that S-MM29 would be a suitable reference stream for S-MM23.

34. S-G21/UNT TO POPLAR CAMP CREEK/FRANKLIN COUNTY/PIPELINE ROW

- Restricted access due to the stream being located outside of perimeter controls, adjacent to LOD
- REVISIT 1/6/2022: Limited access due to existing span, original access constraints were confirmed.
- Reference Stream Rationale: Stream crossing S-G23 was used as a reference stream for stream crossing S-G21. During the supplemental baseline assessment data collection and revisit, the S-G21 stream crossing was not accessible due to being located adjacent to the LOD. S-G21 and S-G23 crossing locations are both located on intermittent sections of UNT to Poplar Camp Creek, within the same local watershed. Due to its proximity, similar topography, and location within the project area, it was determined that S-G23 would be a suitable reference stream.

35. S-G17/UNT TO BLACKWATER RIVER/FRANKLIN COUNTY/TIMBER MAT CROSSING

- No defined stream bed and/or bank was observed during the supplemental field surveys. Additionally, the original delineation identified a poorly defined stream channel.
- REVISIT 1/6/2022: No defined bed/bank was observed outside the growing season, even with vegetation die back.
- Reference Stream Rationale: Stream crossing S-F10 was used as a reference stream for stream crossing S-G17. During the supplemental baseline assessment data collection and revisit, the stream S-G17's bed and banks were not clearly defined, and water flow was not present. Although it is not immediately adjacent to stream S-G17, streams S-G17 and S-F10 are both located on ephemeral sections of UNT to Blackwater River and are similar in drainage area size. Due to stream S-F10's location within the same watershed and similarities in catchment area, it was determined to be a suitable reference stream for S-G17.

36. S-H30/UNT TO JACKS CREEK/FRANKLIN COUNTY/ PIPELINE ROW

- Limited access due to existing span.
- REVISIT 1/6/2022: Limited access due to existing span, original access constraints were confirmed.
- Reference Stream Rationale: Stream crossing S-A18 was used as a reference stream for stream crossing S-H30. During the supplemental baseline assessment data collection, the S-H30 stream crossing was not accessible due to the existing span. Stream crossing S-A18 is also an UNT intermittent tributary to Jacks Creek and has similar land cover. Due to proximity, similar land cover and its location in the project area, S-A18 was determined to be a suitable reference stream.

37. S-MM45/UNT TO LITTLE JACKS CREEK/FRANKLIN COUNTY/TIMBER MAT CROSSING

- No defined stream bed and/or bank were observed during supplemental field investigations. Additionally, the original delineation identified a poorly defined channel.
- REVISIT 1/6/2022: No defined bed/bank was observed outside the growing season, even with vegetation die back.
- Reference Stream Rationale: Stream crossing S-MM44 was used as a reference stream for stream crossing S-MM45. During the supplemental baseline assessment data collection and revisit S-MM45's bed and bank were not clearly defined, and water flow was not present. Although S-MM45 is ephemeral, Mountain Valley used a conservative approach and selected S-MM44 (a perennial stream) which is also a UNT to Little Jacks Creek as a suitable reference stream. In addition, stream S-MM45 drains into S-MM44.

38. S-MM46/UNT TO LITTLE JACKS CREEK/FRANKLIN COUNTY/TIMBER MAT CROSSING

- Adjacent to project LOD, restricted access.
- REVISIT 1/6/2022: Limited access due to existing span, original access constraints were confirmed.
- Reference Stream Rationale: Stream crossing S-MM44 was used as a reference stream for stream crossing S-MM46. During the baseline assessment data collection and revisit, the S-MM46 stream crossing was not accessible due to the stream channel being located adjacent to the LOD. Although S-MM46 is intermittent, Mountain Valley used a conservative approach and selected S-MM44 (a perennial stream) which is also a UNT to Little Jacks Creek as a suitable reference stream. In addition, stream S-MM46 drains into S-MM44.

39. S-DD4-BRAID-1/UNT TO MILL CREEK/PITTSYLVANIA COUNTY/PIPELINE ROW

- Restricted access due to the stream being adjacent to the LOD.
- Reference Stream Rationale: Stream crossing S-DD4 was used as a reference stream for stream crossing S-DD4-Braid-1. During the baseline assessment data collection, the S-DD4-Braid-1 stream crossing was not accessible due to the stream being adjacent to the LOD. S-DD4-Braid-1 and S-DD4 crossing locations are both located on intermittent sections of UNT to Mill Creek and are adjacent to each other. Due to their proximity and

location within the project area, it was determined that S-DD4 would be a suitable reference stream.

40. S-H3/UNT TO CHERRYSTONE CREEK/PITTSYLVANIA COUNTY/PIPELINE ROW

- Limited access due to existing spans.
- REVISIT 1/12/2022: Limited access due to existing span, original access constraints were confirmed.
- Reference Stream Rationale: Stream crossing S-OO1 was used as a reference stream for stream crossing S-H3 Pipeline ROW. During the supplemental baseline assessment data collection and revisit, the S-H3 stream crossing was not accessible due to an existing timber mat (too low to safely collect samples). S-H3 and S-OO1 crossing locations are both located on intermittent sections of UNT to Little Cherrystone Creek within the same local watershed. Due to their proximity and similarities in channel characteristics, it was determined that S-OO1 would be a suitable reference stream.